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EXAMINER	
BELLAMY, TAMIKO D	

ART UNIT	PAPER NUMBER
2856	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/509,119	MEYER ET AL.	
	Examiner	Art Unit	
	Tamiko D. Bellamy	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 and 26-37* is/are rejected.

7)☐ Claim(s) *20-25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 September 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/28/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Preliminary amendment dated 9/28/04 has been received and entered. Claims 1-37 are currently pending.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **19 (See fig. 1).** Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-18, and 26-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abouav (4,860,653) in view of Slykhouse (3,408,855).

Re claim 1, as depicted in fig. 2, Abouav discloses a detonator (6) in at least one detonator hole region (e.g., charge holes 4). Abouav discloses utilizing a blast control signal path (e.g., wire 20) extending between the blast controller (14) and the detonator hole (e.g., charge hole 4). Abouav lacks the detail of utilizing a blast feature signal communication path extending between a detonator hole region to communicate the blast feature signal to a blast feature monitoring station. As depicted in fig. 1, Slykhouse discloses utilizing a blast feature signal communication path (e.g., leads 22, 24) extending between a detonator hole region (e.g., shot hole 12) to communicate the blast feature signal to a blast feature monitoring station (e.g., oscilloscope 32). Therefore, to modify Abouav by employing blast feature signal path and a blast feature monitoring station would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a blast feature signal path and a blast feature monitoring station.

Re claim 2, as depicted in fig. 2, Abouav discloses a plurality of detonators (6) provided in spaced relation at a blast side and each detonator is associated with a controller (14) via means of a blast control signal path (e.g., wires 20). Abouav lacks the detail of the detonators associated with a blast feature signal communication path. As depicted in fig. 1, Slykhouse discloses utilizing a blast feature signal communication path (e.g., leads 22, 24) extending between a detonator hole region (e.g., shot hole 12).

Therefore, to modify Abouav by employing blast feature signal path would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches an apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a controller and Slykhouse is only used to provide the added limitation of a blast feature signal path.

Re claim 3, Abouav discloses detonators (6) associated with a controller (14). Abouav lacks the detail of a feature that is a velocity of denotation of a main charge initiated by a detonator. As depicted in fig. 1, Slykhouse discloses detecting a velocity of denotation (e.g., denotation velocity measuring gauge (10) of a main charge (e.g., explosive. charger material 14) initiated by a detonator (16). Therefore, to modify Abouav by employing a monitoring the velocity of denotation of a main charge would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches an apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a controller and Slykhouse is only used to provide the added limitation of monitoring the velocity of detonation of a main charge initiated by a detonator.

Re claim 4, as depicted in figs, 1 and 2, Abouav discloses a blast controller (14) provided at location remote from the blast site. Abouav lacks the detail of a blast feature

monitoring station provided at a common location of a blast controller and remote from the blast site. As depicted in figs. 1 and 2, Slykhouse discloses a blast feature monitoring station (e.g., oscilloscope 32) provided at location remote from the blast site. Therefore, to modify Abouav by employing a blast feature monitoring station provided at location remote from the blast site would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches an apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a controller and Slykhouse is only used to provide the added limitation of a blast feature monitoring station located remotely from a blast site. **While the combination of Abouav and Slykhouse does not specifically discloses the blast controller and the blast feature monitoring station are located at a common location, the combination of Abouav and Slykhouse would operate equally as well even if the blast featuring monitoring station was placed on top of the blast controller, since the functionality of each device would operate the same and provide the same expected results as the claimed invention.** Therefore, to employ the combination Abouav and Slykhouse on a blast controller and a blast feature monitoring station provided at a common point would have been obvious to one of ordinary skill in the art at the time of the invention since the combination Abouav and Slykhouse explicitly teaches placing a blast controller and a blast feature monitoring station remotely from a blast site.

Re claim 5, as depicted in fig. 2, Abouav discloses blast control signal paths (e.g., wires/conductor 10, 20) connected to each detonator (6).

Re claim 6, as depicted in fig. 2, Abouav discloses a conductor (10) that branches to a main conductor (e.g., wire 20) arranged to connect to a blast controller (14).

Re claim 7, as depicted in fig. 2, Abouav discloses a conductor (10) that branches to a main conductor (e.g., wire 20) arranged to connect to a blast controller (14). Abouav lacks the detail of a sensor connected to one of a main conductor. As depicted in fig. 1, Slykhouse discloses a sensor (e.g. denotation velocity measurement gauge 10) connected to a main conductor (e.g., lead 24). Therefore, to modify Abouav by employing a sensor connected to a main conductor would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of sensor connected to a main conductor.

Re claim 8, as depicted in fig. 2, Abouav discloses a detonator (6) electrically connected to a blast controller (14). Abouav lacks the detail of a sensor located outside of any detonator housing. As depicted in fig. 1, Slykhouse discloses a sensor (e.g. denotation velocity measurement gauge 10) located outside the detonator housing (e.g., detonator 16). Therefore, to modify Abouav by employing a sensor located outside of a detonator housing would have been obvious to one of ordinary skill in the art at the time

of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a sensor located outside the detonator housing for the purpose of monitoring a specific blast feature.

Re claim 9, Abouav discloses a control signal path (e.g., combination or conductor 10, and wire 20) electrically connecting a detonator to a controller. Abouav lacks the detail of a blast feature signal communication path comprising a main conductor arrangement. As depicted in fig. 1, Slykhouse discloses a blast feature signal communication path (e.g., lead 22) comprising a main conductor (e.g. lead 24). Therefore, to modify Abouav by employing a blast feature signal path comprising a main conductor would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a blast feature signal path comprising a main conductor.

Re claim 10, as depicted to fig. 1, Abouav discloses a detonator (6) that is wireless connected to a blast controller (14) via means of transceivers (12, 15) and an antenna (11). Abouav lacks the detail of a blast feature signal communication path comprising a conductor arrangement to which a sensor is connected. Slykhouse discloses

a blast feature signal communication path (e.g., lead 22) comprising a main conductor (e.g. lead 24). Therefore, to modify Abouav by employing a blast feature signal path comprising a main conductor would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a blast feature signal path comprising a main conductor.

Re claims 11 and 12, as depicted in fig. 2, Abouav discloses a detonator (6) for causing a blast. Abouav discloses a conductor (e.g., wire 20) connected to the detonator (6) for controlling the operation of the detonator (6) from a remote blast controller (14). Abouav lacks the detail of a generating a monitoring signal in a conductor arrangement, and sensing changes in a blast feature monitoring parameter. As depicted in fig. 1, Slykhouse discloses a monitoring signal generator (e.g., power supply 26) and a sensor (e.g. denotation velocity measuring gauge 10). Therefore, to modify Abouav by employing a monitoring signal generator and a sensor would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches an apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a

monitoring signal generator and a sensor for sensing changed in a blast feature monitoring parameter.

Re claims 13 and 14, as depicted in figs, 1 and 2, Abouav discloses a blast controller (14) provided at location remote from the blast site. Abouav lacks the detail of a blast feature monitoring station, and a signal generator located at a remote blast controller. As depicted in figs. 1 and 2, Slykhouse discloses a blast feature monitoring station (e.g., oscilloscope 32) provided at location remote from the blast site. Slykhouse discloses a signal generator (e.g., power supply 26). Therefore, to modify Abouav by employing a blast feature monitoring station and a signal generator would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches an apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a controller and Slykhouse is only used to provide the added limitation of a blast feature monitoring station located remotely from a blast site. **While the combination of Abouav and Slykhouse does not specifically discloses the signal generator located at a remote blast controller, the combination of Abouav and Slykhouse would operate equally as well even if the signal generator was placed on top of the blast controller, since the functionality of each device would operate the same and provide the same expected results as the claimed invention.** Therefore, to employ the combination Abouav and Slykhouse on a blast controller and a blast feature monitoring station provided at a common point would have been obvious to one of ordinary skill in the art at the time of

the invention since the combination Abouav and Slykhouse explicitly teaches placing a blast controller and a blast feature monitoring station remotely from a blast site.

Re claim 15, as depicted to fig. 1, Abouav discloses a detonator (6) that is wireless connected to a blast controller (14) via means of transceivers (12, 15) and an antenna (11). Abouav lacks the detail of a signal generator directly connected to conductor, and a sensor connected to the conductor to a remote blast feature monitoring station. As depicted in fig. 1, Slykhouse discloses a signal generator (e.g., power supply 26) connected directly to a conductor (e.g., lead 24), and a sensor (e.g. denotation velocity measurement gauge 10) connected to the conductor (e.g., lead 24). Slykhouse discloses a remote blast feature monitoring station ((e.g., oscilloscope 32). Therefore, to modify Abouav by employing a signal generator directly connected to conductor, and a sensor connected to the conductor to a remote blast feature monitoring station would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a blast feature monitoring station and a signal generator.

Re claim 16, as depicted in fig. 2, Abouav discloses a detonator (6) for causing a blast. Abouav discloses a conductor (e.g., wire 20) connected to the detonator (6) for controlling the operation of the detonator (6) from a remote blast controller (14). Abouav lacks the detail of a monitoring signal generator to generate a monitoring signal in a

conductor arrangement, and a sensor for sensing changes in a blast feature monitoring parameter. As depicted in fig. 1, Slykhouse discloses a monitoring signal generator (e.g., power supply 26) and a sensor (e.g. denotation velocity measuring gauge 10). Therefore, to modify Abouav by employing a monitoring signal generator and a sensor would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches an apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a monitoring signal generator and a sensor for sensing changed in a blast feature monitoring parameter.

Re claim 17, Abouav discloses detonators (6) associated with a controller (14). Abouav lacks the detail of a feature that is a velocity of denotation of a main charge initiated by a detonator. As depicted in fig. 1, Slykhouse discloses detecting a velocity of denotation (e.g., denotation velocity measuring gauge (10) of a main charge (e.g., explosive. charger material 14) initiated by a detonator (16). Therefore, to modify Abouav by employing a monitoring the velocity of denotation of a main charge would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches an apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a controller and Slykhouse is only used to provide the added

limitation of monitoring the velocity of detonation of a main charge initiated by a detonator.

Re claim 18, as depicted in fig. 2, Abouav discloses a conductor arrangement (e.g., combination of conductors 10, and wire 20) connected to a detonator (6) to control the detonator.

Re claim 26, as depicted in fig. 2, Abouav discloses a detonator (6) in at least one detonator hole region (e.g., charge holes 4). Abouav discloses utilizing a blast control signal path (e.g., wire 20) extending between the blast controller (14) and the detonator hole (e.g., charge hole 4). Abouav lacks the detail of utilizing a blast feature signal communication path extending between a detonator hole region to communicate the blast feature signal to a blast feature monitoring station. As depicted in fig. 1, Slykhouse discloses utilizing a blast feature signal communication path (e.g., leads 22, 240 extending between a detonator hole region (e.g., shot hole 12) to communicate the blast feature signal to a blast feature monitoring station (e.g., oscilloscope 32). Therefore, to modify Abouav by employing blast feature signal path and a blast feature monitoring station would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a blast feature signal path and a blast feature monitoring station.

Re claim 27, as depicted in fig. 2, Abouav discloses a detonator (6) electrically connected to a blast controller (14). Abouav lacks the detail of a sensor located outside of any detonator housing. As depicted in fig. 1, Slykhouse discloses a sensor (e.g. denotation velocity measurement gauge 10) located outside the detonator housing (e.g., detonator 16). Therefore, to modify Abouav by employing a sensor located outside of a detonator housing would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a sensor located outside the detonator housing for the purpose of monitoring a specific blast feature.

Re claims 28 and 29, as depicted in fig. 2, Abouav discloses a detonator (6) electrically connected to a blast controller (14). Abouav discloses a conductor arrangement (e.g., combination of conductor (10) and wire (20)). Abouav lacks the detail of a sensor connected to a conductor arrangement. Slykhouse discloses a sensor (18) connected to a conductor arrangement (e.g., lead 24). Therefore, to modify Abouav by employing a sensor connected to a conductor arrangement would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator

using a remote controller and Slykhouse is only used to provide the added limitation of a sensor connected to a conductor arrangement.

Re claim 30, as depicted in fig. 2, Abouav discloses a detonator (6) for causing a blast. Abouav discloses a conductor (e.g., wire 20) connected to the detonator (6) for controlling the operation of the detonator (6) from a remote blast controller (14). Abouav lacks the detail of a monitoring signal generator to generate a monitoring signal in a conductor arrangement, and a sensor for sensing changes in a blast feature monitoring parameter. As depicted in fig. 1, Slykhouse discloses a monitoring signal generator (e.g., power supply 26) and a sensor (e.g. denotation velocity measuring gauge 10). Therefore, to modify Abouav by employing a monitoring signal generator and a sensor would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches an apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a monitoring signal generator and a sensor for sensing changed in a blast feature monitoring parameter.

Re claim 31, as depicted in fig. 2, Abouav discloses a detonator (6) electrically connected to a blast controller (14). Abouav lacks the detail of a sensor located outside of any detonator housing. As depicted in fig. 1, Slykhouse discloses a sensor (e.g. denotation velocity measurement gauge 10) located outside the detonator housing (e.g., detonator 16). Therefore, to modify Abouav by employing a sensor located outside of a

detonator housing would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a sensor located outside the detonator housing for the purpose of monitoring a specific blast feature.

Re claim 32, as depicted in fig. 2, Abouav discloses a detonator (6) electrically connected to a remote blast controller (14) by a conductor arrangement (e.g., combination of conductors (10) and wire (20)). Abouav lacks the detail of a signal generator connected to the conductor arrangement by a main conductor. As depicted in fig. 1, Slykhouse a signal generator (e.g. power supply 26) connected to a conductor arrangement (e.g., leads 22, 24) by a main conductor (e.g., lead 24). Therefore, to modify Abouav by employing a signal generator connected to a main conductor would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of connecting a signal generator to a main conductor.

Re claim 33, as depicted in fig. 2, Abouav discloses a detonator (6) electrically connected to a remote blast controller (14). Abouav lacks the detail of a signal generator

forms part of a blast controller. Slykhouse discloses a signal generator (e.g., power supply 26) that forms part of a blast feature monitoring station (e.g., oscilloscope 32). Therefore, to modify Abouav by employing a signal generator would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches an apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of connecting a signal generator. **While the combination of Abouav and Slykhouse does not specifically discloses the signal generator forms part of the blast controller,** the court held in In re Kohno, 391 F.2d 959, 157 USPQ 275 (CCPA 1968); In re Larson, 340 F.2d 965, 144 USPQ 347 (CCPA 1965), that a one-piece construction, in place of separate elements fastened together, is a design consideration within the skill of the art. The signal generator forming part of a blast controller is equivalent to a one-piece/integral construction. Therefore, to employ the combination Abouav and Slykhouse on a signal generator forming part of the blast controller would have been obvious to one of ordinary skill in the art at the time of the invention since the combination Abouav and Slykhouse explicitly teaches placing a blast controller and signal generator remotely from a blast site.

Re claim 34, as depicted in fig. 2, Abouav discloses a detonator (6) electrically connected to a remote blast controller (14). Abouav lacks the detail of a sensing circuit forming part of a blast controller. Slykhouse discloses a sensor (10) that forms part of a

blast feature monitoring station (e.g., oscilloscope 32). Therefore, to modify Abouav by employing a sensor would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches an apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of sensor. **While the combination of Abouav and Slykhouse does not specifically discloses the signal generator forms part of the blast controller,** the court held in In re Kohno, 391 F.2d 959, 157 USPQ 275 (CCPA 1968); In re Larson, 340 F.2d 965, 144 USPQ 347 (CCPA 1965), that a one-piece construction, in place of separate elements fastened together, is a design consideration within the skill of the art. The sensing circuit forming part of a blast controller is equivalent to a one-piece/integral construction. Therefore, to employ the combination Abouav and Slykhouse on a signal generator forming part of the blast controller would have been obvious to one of ordinary skill in the art at the time of the invention since the combination Abouav and Slykhouse explicitly teaches placing a blast controller and signal generator remotely from a blast site.

Re claims 35 and36, as depicted to fig. 1, Abouav discloses a detonator (6) that is wireless connected to a blast controller (14) via means of transceivers (12, 15) and an antenna (11). Abouav lacks the detail of a sensor directly connected to conductor, and a sensor connected to the conductor to a remote blast feature monitoring station. As depicted in fig. 1, Slykhouse discloses a sensor (10) connected directly to a main

conductor (e.g., lead 24), and a sensor (e.g. denotation velocity measurement gauge 10) connected to the conductor (e.g., lead 24). Slykhouse discloses a remote blast feature monitoring station ((e.g., oscilloscope 32). Therefore, to modify Abouav by employing a sensor directly connected to conductor, and a sensor connected to the conductor to a remote blast feature monitoring station would have been obvious to one of ordinary skill in the art at the time of the invention since Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a blast feature monitoring station and a sensor.

Re claim 37, as depicted to fig. 1, Abouav discloses a detonator (6) that is wireless connected to a blast controller (14) via means of transceivers (12, 15) and an antenna (11). Abouav lacks the detail of a signal generator directly connected to conductor, and a sensor connected to the conductor to a remote blast feature monitoring station. As depicted in fig. 1, Slykhouse discloses a signal generator (e.g., power supply 26) connected directly to a conductor (e.g., lead 24), and a sensor (e.g. denotation velocity measurement gauge 10) connected to the conductor (e.g., lead 24). Slykhouse discloses a remote blast feature monitoring station ((e.g., oscilloscope 32). Therefore, to modify Abouav by employing a signal generator directly connected to conductor, and a sensor connected to the conductor to a remote blast feature monitoring station would have been obvious to one of ordinary skill in the art at the time of the invention since

Slykhouse teaches a apparatus for determining detonation velocity of explosives having theses design characteristics. The skilled artisan would be motivated to combine the teachings of Abouav and Slykhouse since Abouav states that his invention is applicable to a detonator using a remote controller and Slykhouse is only used to provide the added limitation of a blast feature monitoring station and a signal generator.

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abouav (4,860,653) in view of Slykhouse (3,408,855) as applied to claims 1-18, and 26-37 above, and further in view of Hill et al. (5,295,438).

Re claim 19, as depicted in fig. 2, the combination of Abouav and Slykhouse discloses a conductor arrangement (e.g., combination of conductors 10, and wire 20) connected to a detonator (6) to control the detonator. The combination of Abouav and Slykhouse lacks the detail of a conductor arrangement comprising a pair of twisted conductors. As depicted in fig. 2 Hill et al. a pair of twisted conductors (22). Therefore, to modify the combination of Abouav and Slykhouse by employing a twisted pair of conductors would have been obvious to one of ordinary skill in the art at the time of the invention since Hill et al. teaches a blast system having theses design characteristics. The skilled artisan would be motivated to combine the teachings of the combination of Abouav and Slykhouse and Hill et al. since the combination of Abouav and Slykhouse states that his invention is applicable to a blast system including detonators connected to a conductor arrangement and Hill et al. is only used to provide the added limitation of a pair of twisted conductors.

Allowable Subject Matter

6. Claims 20-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamiko D. Bellamy whose telephone number is (571) 272-2190. The examiner can normally be reached on Monday - Friday 7:30 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Tamiko Bellamy
T-B.
October 11, 2006

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